



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/859,701	05/16/2001	Benjamin P. Warner	S-94,661	4132
35068	7590	12/30/2005	EXAMINER	
UNIVERSITY OF CALIFORNIA LOS ALAMOS NATIONAL LABORATORY P.O. BOX 1663, MS A187 LOS ALAMOS, NM 87545			DAVIS, DEBORAH A	
			ART UNIT	PAPER NUMBER
			1641	

DATE MAILED: 12/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/859,701	Applicant(s) WARNER ET AL.	
	Examiner Deborah A. Davis	Art Unit 1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicants' response to the Office Action mailed on April 25, 2005 has been acknowledged. Currently, claims 1-20 are pending, which includes newly added claims 11-20.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-8, 10-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pirrung et al (WO 90/15070) in view of Boris Yokhin (USP#6,041,095).

Pirrung et al teaches a method and device for preparing desired sequences on a substrate at known locations wherein bound material of the substrate is exposed to irradiation (pg. 10, lines 1-35) so as to activate material and permit binding (see abstract). The substrate has a variety of uses such as screening large numbers of peptides or receptors, wherein receptors are labeled with fluorescent markers for detection. Other applications of the invention include doping of organic material in the substrate (pg. 5, lines 14-36). In an alternative embodiment the surface may comprise of cage binding members that are capable of immobilizing receptors in predefined regions of a substrate for selective activation that allow receptors that have differential

Art Unit: 1641

affinity for one or more ligands to react (pg. 55, lines 30-37 and pg. 56, lines 1-11). A specific binding substance having a strong binding affinity for the binding member and a strong affinity for the receptor or a conjugate of the receptor may be used to act as a bridge between binding members and receptors if desired. The method uses a receptor prepared such that the receptor retains its activity toward a particular ligand (pg. 56 lines 30-36). Steps (a) and step (d) of claim 11 are slightly different in that they recite a negative limitation. Step (a) requires that at least one potential binder is not labeled with an additional optically fluorescent tag. The reference of Pirrung teaches step (a), wherein a screening process for one or more receptors on a substrate that are exposed to labeled antibody binders and detected by photon detection (column 5, lines 14-25). The antibody binder is not labeled with any additional optically fluorescent tags. The reference of Pirrung teaches step (d) of claim 11 wherein the presence or absence of a binding event between the receptors and ligands are detected (page 41, lines 5-10). According to Pirrung et al, receptors used in this method could be organic compounds such as polymers (oligomer), nucleic acids, peptides, drugs, cellular membranes, cells, etc. (pg. 11, lines 7-24). The binder molecule can be selected from the group consisting of agonists and antagonists for cell membrane receptors, oligonucleotides, nucleic acids, proteins, antibodies, etc. (pg. 9, lines 30-37).

The method of Pirrung et al is silent with respect to X-ray fluorescence for analysis. However, the reference of Boris Yokhin teaches an apparatus for X-ray excitation of a sample and discloses in the background of the invention that this procedure is well known in the art for determining the elemental composition of a sample

Art Unit: 1641

and that X-ray fluorescence is analyzed to find the energies or the wavelengths of the detected photons for qualitative and/or quantitative analysis (column 1, lines 9-20).

Accordingly, it would have been obvious to one of ordinary skill in the art to select or include x-ray fluorescence as taught by Yokhin in the variety of detection methods used by Pirrung et al to find the energies or the wavelength of the detected photons for qualitative and/or quantitative analysis (column 1, lines 9-20). One would be motivated to include x-ray fluorescence in the reference of Pirrung et al in view of the closely related methodology and sensitivity in the detection of binding events and expectation of success.

4. Claim 9 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pirrung et al in view of Boris Yokhin and in further view of Weinberg et al (USP#6,030,917).

The teachings of Pirrung et al in view of Boris Yokhin are set forth and is silent with respect to the binder being a metal ion.

However, Weinberg et al teaches methods of screening and characterization of libraries of organometallic compounds which can be used as catalysts and therapeutic agents (see abstract). Ancillary ligand-stabilized metal complexes are also useful as catalysts for reactions such as oxidation, reduction, hydrogenation, polymerization, carbonylation and other reactions.

It would have been obvious to one of ordinary skill in the art to use the metal ion binder of Weinberg et al in the method and device for preparing desired sequences on a

substrate as taught by Pirrung et al in view of Yokhin to screen for therapeutic agents and catalysts that are useful in oxidation, reduction and other useful reactions.

Response to Arguments

1. Applicant argues that the reference of Pirrung does not teach or suggest using X-ray fluorescence detection to detect a binding event. This argument have been considered but not found to be persuasive.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The reference of Pirrung was not relied on for its teaching of X-ray fluorescence detection, the reference of Yokhin was relied on for the teaching of X-ray fluorescence.

2. Applicant argument that using X-ray fluorescence detection to detect a binding event is not taught or suggested by Pirrung's teachings and there is not motivation to modify the teaching of Pirrung to obtain Applicant's claimed invention have been considered but not found to be persuasive.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention

Art Unit: 1641

where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the examiner provided a clear motivation as to why one of ordinary skill in the art would want to modify the teaching of Pirrung to include X-ray fluorescence which has been set forth in the Office Action above. Since Applicant has not particularly pointed out a discrepancy in the motivation provided in the above Office Action, the examiner maintains that the motivation is clear and the references of Pirrung in view of Yokhin are deemed obvious over the instant claimed invention.

3. Applicant argument that using X-ray fluorescence detection is not close to Pirrung's other teaching. Applicant further argues that using X-ray fluorescence detection to determine whether or not a binding event has occurred provides benefits not otherwise available from Pirrung's teachings because it does not require the constraint of labeling chemicals with additional optically fluorescent tags that could affect the binding properties of the chemical. This argument is noted but not found to be persuasive.

In response, the reference of Pirrung does not require the constratin of labeling chemical with additional optically fluorescent tags. The reference of Pirrung teaches the option of using labeled or unlabeled receptors in the detection methods used (page 35,

Art Unit: 1641

lines 1-6). Therefore, it appears that Pirrung offers the same benefits of the instant invention such that the binding properties would not be affected.

4. Applicant argument that the specification cannot be used as a 'parts-list' to search for disparate parts in the art and then used as a blueprint to assemble the selected parts. Applicant further argues that motive should come from the references and these principles were not followed in the Office Action. This argument is noted but not found to be persuasive.

In response, the motivation for combining the reference of Pirrung in view of Yokhin is found in the references (see Yokhin, column 1, lines 9-20), not Applicant's specification.

Conclusion

5. No claims are allowed.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

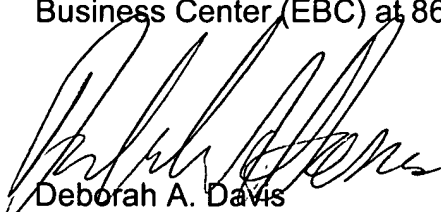
Art Unit: 1641

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah A. Davis whose telephone number is (571) 272-0818. The examiner can normally be reached on 8-5 Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (571) 272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Deborah A. Davis
Remsen Bldg.
Room 3D58
December 13, 2005



LONG V. LE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600

12/22/05